

I claim:

1. A method of embedding identification data in video, the video comprising a plurality of video frames, said method comprising the steps of:  
embedding the identification data in a first video frame, the embedded identification data being visually perceptible upon examination of the first frame;  
selecting a second video frame, wherein the first and second video frames are separate frames; and  
embedding the identification data in the second video frame, the embedded identification data being visually perceptible upon examination of the second frame, wherein the identification data is generally imperceptible upon real-time rendering of the video.
2. The method of claim 1, wherein the selecting step comprising selecting the second frame so that the repetition of the embedded identification data is imperceptible to the human conscious mind when rendered.
3. The method of claim 1, wherein the identification data is embedded in the same frame location in each of the first and second frames.
4. A detection method for the video embedded according to claim 1, comprising the step of visually inspecting the first or second frames.
5. A detection method for the video embedded according to claim 1, comprising the steps of providing character recognition of the first or second frames to detect the identification data.

6. The method of claim 1 wherein the identification data is embedded in each of the first and second frames in the form of a digital watermark, yet the embedded digital watermarks remain visually perceptible upon examination of the first frame and second frame.

7. The method of claim 6, wherein the watermark visibility is due at least in part to watermark signal strength or intensity.

8. The method of claim 2, wherein the second frame is selected so that the repetition of the embedded identification data is imperceptible to the unconscious human mind.

9. The method of claim 1, wherein the identification data comprise at least one of text, numbers, codes, images and graphics.

10. The method of claim 3, wherein the same location comprises a window.

11. The method of claim 1, wherein the identification data comprise a plurality of identifiers.

12. The method of claim 11, wherein each of the plurality of identifiers is embedded to be spatially located in a separate frame location with respect to each other.

13. The method of claim 12, wherein the separate frame locations are the same for each of the first frame and second frames.

14. The method of claim 11, wherein the plurality of identifiers comprise a content identification, a distributor identification, copy restriction information, and an exhibition identification.

15. The method of claim 1, wherein the identification data comprises at least one of a content identification, a distributor identification, copy restriction information, and an exhibition identification.

16. A detection method for the video embedded according to claim 1, comprising the step of averaging a plurality of the video frames including the first and second frames, wherein the averaging improves the signal to noise ratio of the identification data to video content.

17. A method to deter unauthorized copying of video, the video to be projected onto or displayed on a viewing screen, the copying to be performed by a recording device, wherein the video comprises a sequence of video frames, said method comprising the steps of:

embedding identification data in a first video frame, the embedded identification data being visually perceptible upon examination of the first frame;

selecting a second video frame, wherein the first and second video frames are separate frames; and

embedding the identification data in the second video frame at generally the same frame location as in the first frame, the embedded identification data being visually perceptible upon examination of the second frame, wherein the identification data is generally imperceptible upon rendering of the video, but a video sequence separation distance between the first and second frames is selected such that the identification data becomes perceptible in a copy of the video captured with the recording device when rendered for viewing in real time, wherein the recording device includes a frame-capture rate that is higher than the projected or displayed frame rate for the video.

18. The method of claim 17, wherein the recording device comprises a handheld camcorder.

19. The method of claim 18, wherein the video comprises a movie and the rendering is at a theater.

20. The method of claim 17, wherein the identification data comprises an image.

21. The method of claim 17, wherein the separation distance comprises one video frame.

22. The method of claim 21 further comprising embedding the identification data in a third video frame at generally the same frame location as in the first and second frame, the embedded identification data being visually perceptible upon examination of the third frame, wherein the identification data is generally imperceptible upon rendering of the video, and wherein the second and third frames are separated by a distance sufficient to allow the embedded data to remain imperceptible upon rendering of the video, but further enforcing the perceptibility in the copy as captured by the recording device.

23. A method of marking content with auxiliary data, the method characterized in that the auxiliary data is embedded to be humanly perceptible if examined in a finite segment or frame of the content, but is embedded so as to be humanly imperceptible when examined as the content is rendered in real-time.

24. The method of claim 23, wherein the content comprises audio.

25. The method of claim 23, wherein the content comprises video.

26. A method of hiding identification data in an audio sequence, wherein the identification data comprises audible words or sounds, said method comprising the steps of:

providing the identification data for embedding; and  
redundantly embedding the identification data throughout the audio sequence at a level below human audible perception,

wherein averaging segments of the audio sequence yields the identification data at a perceptible audible level.

27. A method of steganographically hiding data in media content, wherein the media content comprises a plurality of segments including masking content, said method being characterized in that at least two of the media segments are provided with the data, wherein the data comprises humanly perceptible data, and wherein the data remains perceptible upon individual examination of the at least two media segments but consciously imperceptible as the media content is rendered in real time since the data is below a perceptual threshold due to the masking content.

28. The method of claim 27 wherein the media content comprises video, the plurality of segments comprises video frames and the masking content comprises video frames without the data.

29. The method of claim 28, wherein the data comprises an image of at least one of a hexadecimal number, binary number and decimal number.

30. The method of claim 28, wherein the data comprises an image of text.

31. The method of claim 27, wherein the media content comprises audio and the plurality of segments comprise audio segments and the masking content comprises unembedded audio.

32. The method of claim 31, wherein the data comprises a voiced version or audible rendition of at least one of a hexadecimal number, binary number and decimal number.

33. A detector to detect the data provided according to claim 28, wherein the detector averages a plurality of the video frames so that the provided data becomes consciously perceptible.

34. A detector to detect the data provided according to claim 31, wherein the detector averages a plurality of the audio segments so that the data becomes consciously perceptible.